

REMARKS

This is in response to the Office Action mailed March 11, 2005. In the Office Action, all claims 1-22 were rejected. With this Amendment, claims 1 and 9 are amended and the remaining claims are unchanged in the application.

Dependent claim 9 has been amended to remedy a typographical error. Accordingly, dependent claim 9 is not intended to be limited in any manner whatsoever.

Section Two of the Office Action indicated that claim 1, among others, was rejected under 35 U.S.C. § 102(b) as being anticipated by Jewell (U.S. Patent 5,367,911 - hereinafter Jewell). Jewell essentially provides a flow meter. The mechanism by which flow is detected in the Jewell reference is by using a plurality of sensors that sense a fluid characteristic, such as conductivity. The sensors are spaced apart in a direction of flow such that time correlation of the fluid property reading from one sensor to another sensor can yield information about the direction and magnitude of fluid flow. With respect to these sensors, Jewell provides,

"Sensors 38 and 40 are selected for their ability to respond to some physical property of matter in the borehole 32, and thus interact with fluid in the borehole. The sensors thus detect the fluid. If the fluid property to which the sensor responds is varied, this will be observable due to the corresponding change in any output signals generated by the sensors."
Column 4, lines 52-61.

It is noted that the Office Action relies upon FIG. 10 of Jewell, and the description thereof, as providing a flow-through conductivity sensors. In fact, while Jewell discloses that various electrodes can be used, FIG. 10 is actually a description of a particular type of circuit with which their electrodes can be used. In fact, nowhere in the teachings of

Jewell is a conductivity measurement of the fluid reported to a user. In fact, Jewell, repeatedly characterize the description of FIG. 10 as a circuit diagram for a focused electrical conductivity sensor, or transducer. They also note that, "Virtually any sensor which interacts with the medium surrounding the flowmeter, depending on some physical property of the medium, may be utilized in a flowmeter of the present invention." See Column 11, lines 10-13. Referring directly to FIG. 10, even if current sensing electrode 122 and guard electrodes 124 could be considered to meet the limitations of Applicants' first and second electrodes set forth in independent claim 1, there still exists an important distinction. In particular Jewell provided, "Current flow across the fluid segment 128 to the conduit 126 is returned to ground " Column 9, lines 66-67. Accordingly, the conduit of Jewell must not only be conductive, but also grounded. Further, there is no indication that current flows between guard electrode 124 and current sensing electrode 122.

In distinct contrast, Applicants have amended independent claim 1 to now recite the features wherein the first and second electrodes convey an electrical current between the first and second electrodes through the process fluid. Moreover, this arrangement facilitates the use of the current return conductor. A toroid then interacts with the current return conductor to provide an indication of process fluid conductance. This is simply neither taught nor shown by Jewell. Therefore, Applicants respectfully submit that amended claim 1 is neither taught nor suggested by Jewell. Further, Applicants respectfully submit that dependent claims 2 and 4-8 are similarly not anticipated by Jewell by virtue of their dependency, either directly or indirectly, from amended independent claim 1.

Section Four of the Office Action indicated that independent claims 10, 14 and 16, among others, were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jewell in view

of Rosenthal (U.S. Patent 3,404,336 - hereinafter Rosenthal). In distinct contrast to Jewell, Rosenthal does, in fact, provide an apparatus for measuring electrical conductivity of a fluid. Further still, Rosenthal employs a plurality of toroids to generate and detect electrical currents within a conductive fluid flowing in a conduit. However, this is not unlike the prior art approaches described by Applicants in their background of the invention. One difference between the apparatus of Rosenthal and the prior art described by Applicants is that Rosenthal appears to create a loop like housing having legs 10, 11 and 15. The toroidal coils 16 and 18 are placed on one or more legs of the loop to generate and detect electrical current within the fluid inside the conduit. The Office Action asserts, in Section Four, that,

"At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Jewell by adding a second drive toroid disclosed by Rosenthal for setting up a current in a fluid in the conduit for measuring the conductivity of the fluid as a function of the current induced in the fluid."

Applicants respectfully note that from the description of FIGS. 10-12 of Jewell, Jewell has already provided a circuit that sets up a current, for example flowing through region 128, in the fluid in the conduit that is used for measuring the conductivity of the fluid as a function of the current induced in the fluid. Accordingly, one skilled in the art would have no reason to turn to any other reference whatsoever to supply the function already accomplished by the primary reference. Further, given that Rosenthal is directed specifically to non-contact conductivity measurement regimes, there appears to be no suggestion why one skilled in the art, faced with the Jewell flowmeter, would turn to a reference such as the Rosenthal reference to supply a second toroid. Instead, Applicants

respectfully submit that the alleged suggestion to combine the Rosenthal reference with the Jewell reference is due to impermissible hindsight based on a firm understanding of Applicants' invention. Accordingly, Applicants respectfully submit that the Jewell reference and the Rosenthal reference may not be combined as asserted by the Office Action. Thus, Applicants respectfully submit that independent claims 10, 14 and 16 are allowable over the art of record. Moreover, Applicants respectfully submit that dependent claims 11-13, 15 and 17-22 are allowable as well, by virtue of their dependent, either directly or indirectly, from allowable independent claims.

In conclusion, Applicants respectfully submit that the entire application is now in condition for allowance. Reconsideration and favorable action are respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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